FIG. 1

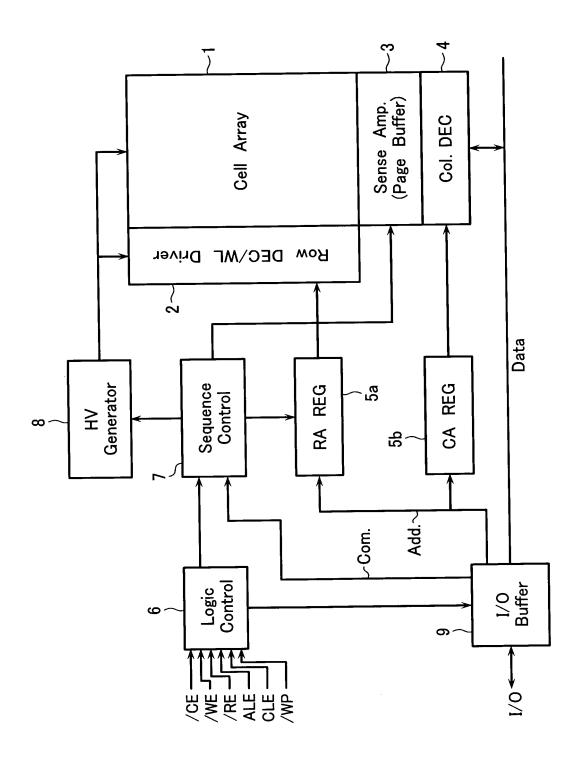


FIG. 2

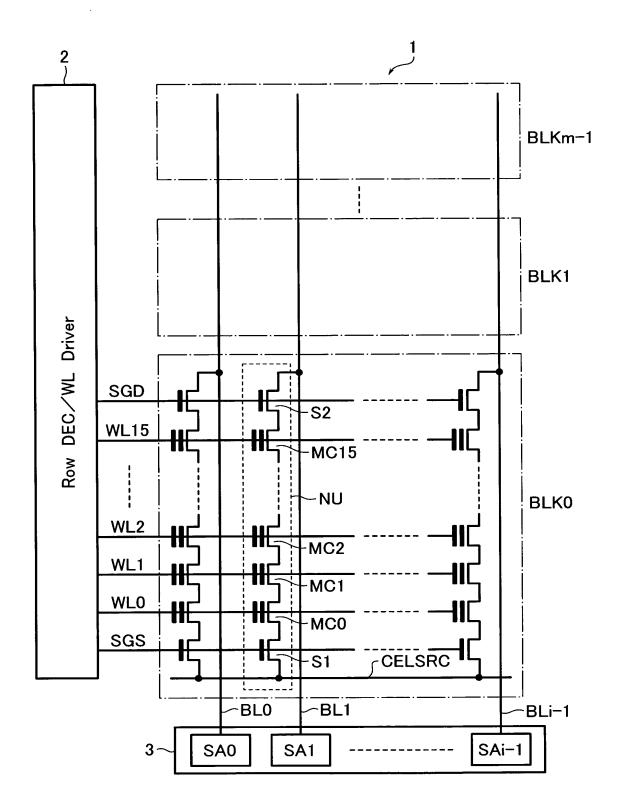


FIG. 3B FIG. 3A BL20V BL 0V/Vdd ("0"Data /"1"Data) 20V SGD --Vdd SGD --MCi > MCi-0V/20V WLi -WLi -- 10V (Selected Block /Non-Selected Block) MC2 - 10V WL2 -0V/20V WL2 -MC1 MC1 WL1 -20V WL1 -0V/20V MC0-MC0 WL0 --WL0 ---10V 0V/20V SGS --20V SGS ---**0V** 20V Vdd CELSRC CELSRC · Cell Well 20V Cell Well 0V [Erase] [Program]

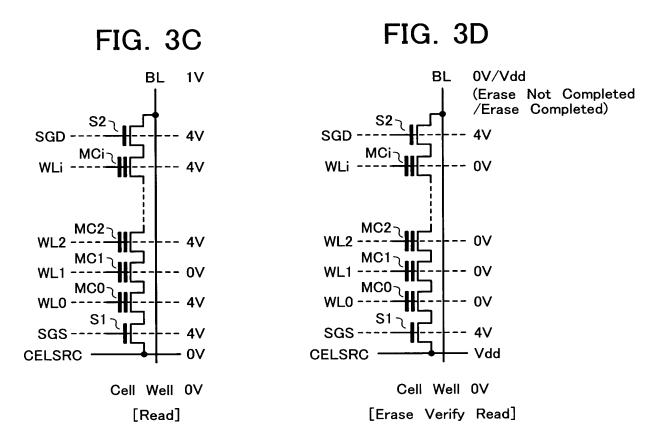


FIG. 4A

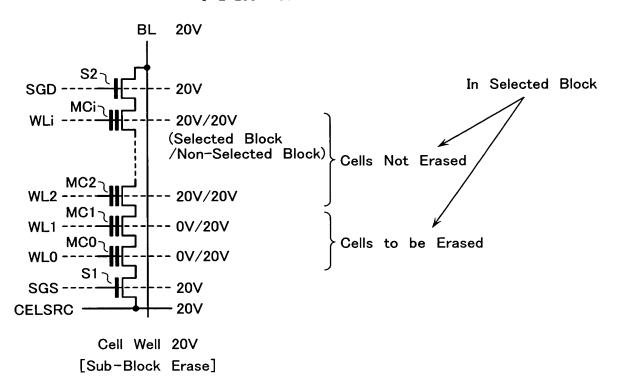


FIG. 4B

DbV\Vdd BL (Erase Not Completed /Erase Completed) SGD --MCi-WLi --WL2 --4V MC1-MC0 WL0 ---- 0V S1 **4V** SGS ----CELSRC · Cell Well 0V

[Sub-Block Erase Verify Read]

FIG. 4C

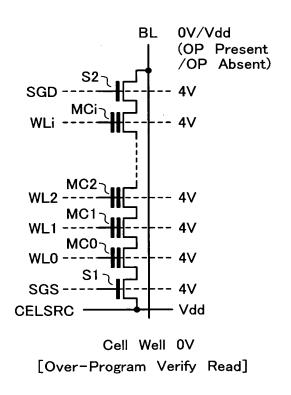


FIG. 5

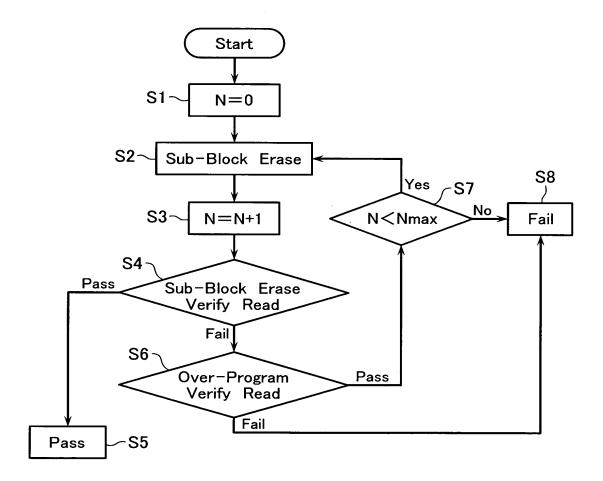


FIG. 6

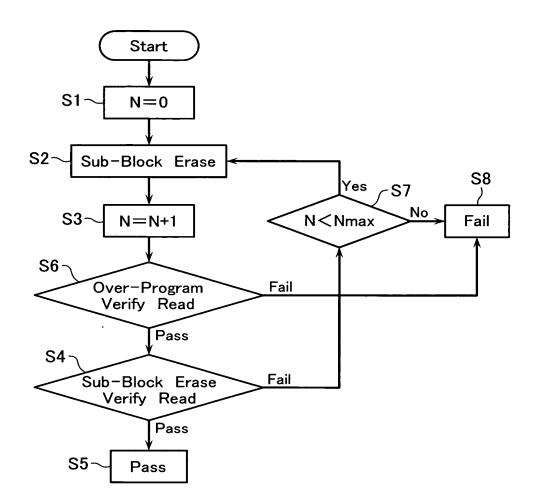


FIG. 7

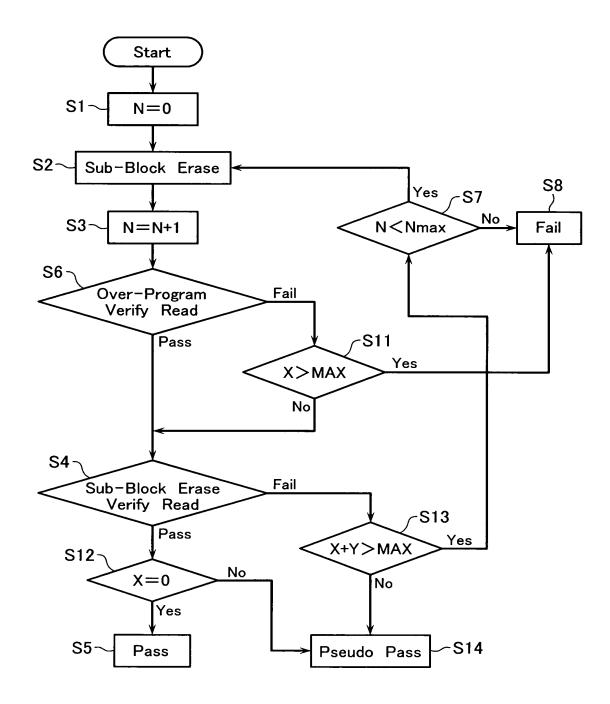
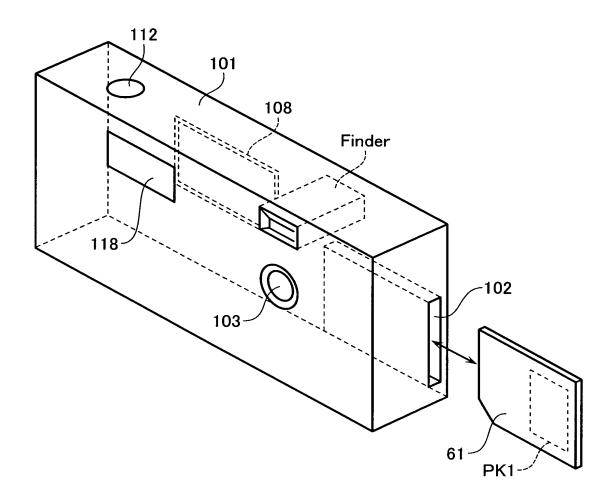


FIG. 8



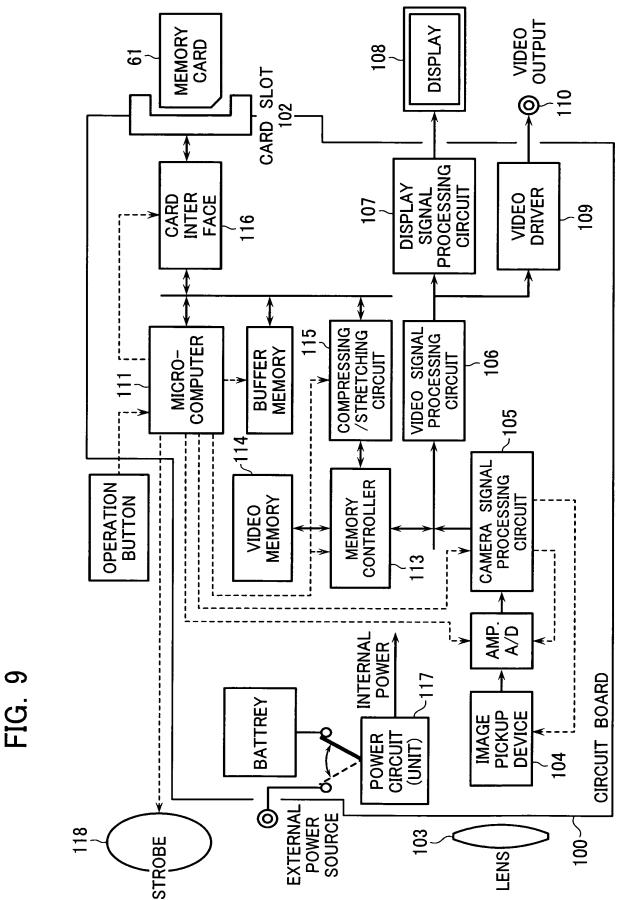


FIG. 10A

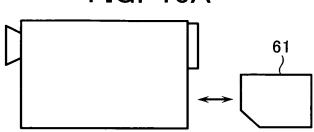


FIG. 10F

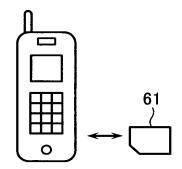


FIG. 10B

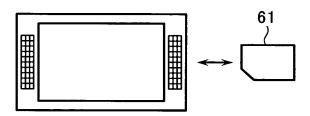


FIG. 10G

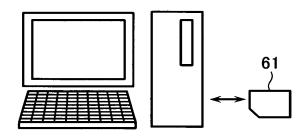


FIG. 10C

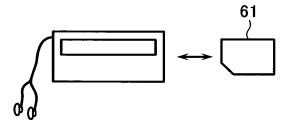


FIG. 10H



FIG. 10D

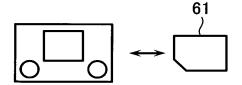


FIG. 10I

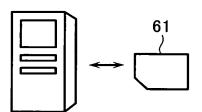


FIG. 10E

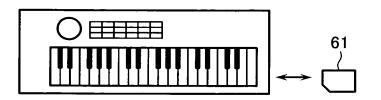


FIG. 10J

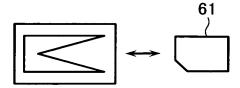


FIG. 11

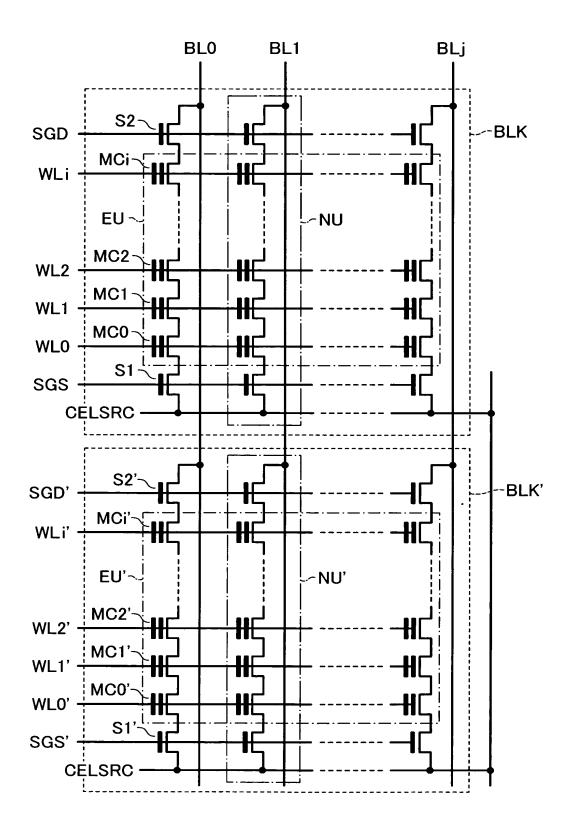
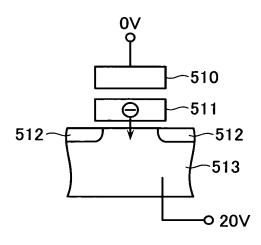
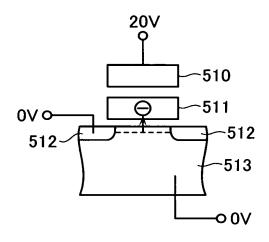


FIG. 12A



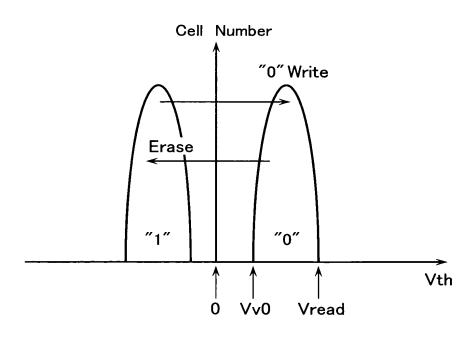
[During Erase]

FIG. 12B



[During Write]

FIG. 12C



[Cell Array Threshold Voltage Distribution]